JAN 28 1992

Docket Nos. 50-445
50-446
License No. NPF-87
Construction Permit No. CPPR-127
EA 91-189

TU Electric
ATTN: W. J. Cahill, Jr., Executive
Vice President, Nuclear
Skyway Tower
400 North Olive Street, L.B. 81
Dallas, Texas 75201

Gentlemen:

This refers to the enforcement conference conducted at Region IV's request in the Region IV office on January 17, 1992. This enforcement conference pertained to safety system misalignments discovered upon entry into Mode 3 in December 1991. Attendees are designated in the attachment to the enclosed Meeting Summary, which outlines the specific areas of discussion.

It is our opinion that this meeting was beneficial to our understanding of the apparent violations identified in NRC Inspection Report 50-445/91-62; 50-446/91-62. You will be advised by separate correspondence of the results of our deliberations concerning the apparent violations.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter will be placed in the NRC's Public Document Room.

Should you have any questions concerning this matter, we will be pleased to discuss them with you.

Sincerely,

Original Signed By:
A. B. BEACH

A. Bill Beach, Director
Division of Reactor Projects

Enclosure:
Meeting Summary w/attachments

cc: (see next page)

RIV:DRP/B	C:DRP/B	D:DRP
TReis:tf	LAYandell	ABBeach
1/24/92	1/28/92	1/28/92

IE45
1/1

cc w/enclosure:
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Texas Department of Labor & Standards
ATTN: G. R. Bynog, Program Manager/
Chief Inspector
Boiler Division
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Austin, Texas 78711

Honorable Dale McPherson
County Judge
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Texas Radiation Control Program Director
1100 West 49th Street
Austin, Texas 78756

Owen L. Thero, President
Quality Technology Company
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Fort Worth, Texas 76119

bcc to DMB (IE45)

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Section Chief (DRP/B)
DRSS-RPEPS
MIS System
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J. Lieberman, D/OE
Resident Inspector (2)
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Project Engineer (DRP/B)
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MEETING SUMMARY

Licensee: TU Electric

Facility: Comanche Peak Steam Electric Station (CPSES) - Unit 1

License No.: NPF-87

Docket No.: 50-445

SUBJECT: ENFORCEMENT CONFERENCE PERTAINING TO SAFETY SYSTEM MISALIGNMENTS UPON ENTRY INTO MODE 3

On January 17, 1992, representatives of TU Electric met with Region IV personnel at the Regional offices to discuss the licensee's discovery of residual heat removal and auxiliary feedwater valve misalignments upon entry into Mode 3 in December 1991. The misalignments are documented as apparent violations in NRC Inspection Report 50-445/91-62; 50-446/91-62 dated December 27, 1991. The conference provided valuable information relative to the causes and safety significance of these misalignments.

Attachments:
1. Attendance List
2. Licensee Presentation (partial NRC and nonattendee distribution only)

ATTACHMENT 1

ATTENDANCE LIST

Attendance at the enforcement conference between TU Electric and NRC on January 17, 1992, in the Region IV office:

TU Electric

W. Taylor, Executive Vice President
W. Cahill, Jr., Group Vice President Nuclear Engineering and Operations
R. Walker, Manager of Nuclear Licensing
A. Scott, Jr., Vice President, Nuclear Operations
J. Kelley, Jr., Plant Manager
W. Choe, LOCA Analysis Supervisor, Reactor Engineering
J. Donahoe, Manager, Operations
T. Daskam, Shift Supervisor, Operations Department
M. Niemeyer, Unit Supervisor
D. Kross, Unit 2 Operations Manager
D. Scott, Secretary, Licensing Manager, CPSES
S. Palmer, Stipulation Manager
S. Frantz, Attorney, Newman & Holtzinger
D. McAfee, Manager, Quality Assurance
D. Fiorelli, Public Information

NRC

A. Beach, Director, Division of Reactor Projects (DRP)
D. Chamberlain, Acting Director, Division of Reactor Safety
L. Yandell, Chief, Project Section B, DRP
T. Reis, Project Engineer, Project Section B, DRP
W. Johnson, Senior Resident Inspector, CPSES, Unit 1
A. Dummer, Reactor Engineer Intern
D. Garcia, Reactor Engineer Intern
T. Bergman, Project Engineer
G. Sanborn, Enforcement Officer
G. Werner, Resident Inspector Trainee, CPSES, Unit 1
T. McKernon, Reactor Inspector, Operational Programs Section, Division of Reactor Safety
J. Ramsey, Regional Coordinator, Office of the Executive Director for Operations

DOE

K. Sidey, Operations
E. Young, Operations

ENFORCEMENT CONFERENCE

PROBLEMS ENCOUNTERED
DURING MODE 3 ENTRY

JANUARY 17, 1992

MECHANISMS AND PROCEDURES THAT CONTROL MODE CHANGES

- INTEGRATED OPERATING PROCEDURE STEPS SEQUENCE ACTIVITIES (SURVEILLANCES, HEATUP AND MODE ENTRY VERIFICATIONS)

- INTEGRATED OPERATING PROCEDURE MODE CHANGE CHECKLISTS

- INTEGRATED OPERATING PROCEDURE REQUIRES SYSTEM LINEUP VERIFICATIONS

- SURVEILLANCE DATA BASE REVIEWED BY THE RESPONSIBLE DEPARTMENTS, OPERATIONS AND PLANT ENGINEERING TO ENSURE MODE ENTRY SURVEILLANCES ARE COMPLETE

- MODE ENTRY IS CONTROLLED BY A SRO WITH SIGNOFFS IN THE INTEGRATED OPERATING PROCEDURE

- ADDITIONAL RESOURCES AND MANAGEMENT OVERSIGHT TO REVIEW CONTROL ROOM ACTIVITIES, LCO TRACKING AND PLANT LINEUPS

PROCEDURES THAT GOVERN RHR CONFIGURATION

- INTEGRATED OPERATING PROCEDURES (IPO)
  1. IPO-001 PLANT HEAT UP MODE 5 TO 3

- SYSTEM OPERATING PROCEDURES (SOP)
  1. SOP-102 RHR

- SURVEILLANCE TEST PROCEDURES (OPT)
  1. OPT-203 RHR
  2. OPT-102 12 HOUR CHECKS OF ECCS VALVES

- ADMINISTRATIVE PROCEDURES (ODA)
  1. ODA-403 LOCK VALVE PROGRAM
  2. ODA-407 GUIDELINE ON PROCEDURE USE
     - IPO, OPT, RFO, EOP DIRECTLY REFERENCED AND STEP SIGNOFF REQUIRED
     - INITIAL LINEUPS FOR SOPs AND RWS PROCEDURES REQUIRED TO BE INITIALED AND KEPT FOR RECORDS
  3. ODA-410 SYSTEM STATUS
     - DOCUMENT THE COMPONENT POSITION IN THE UNIT LOG IF DIFFERENT THAN THE SOP OR TEST PROCEDURE REQUIRED POSITION
     - IF THE ALIGNMENT MAKES THE COMPONENT OR SYSTEM INOPERABLE, IMPLEMENT ODA-308 REQUIREMENTS FOR LCOAR TRACKING
  4. STA-694 VERIFICATION ACTIVITIES

RHR MODE 4 AND 3 CONFIGURATION AND FUNCTION

- MODE 4 CONFIGURATION
  1. 1 TRAIN IN STANDBY READINESS (ASSOCIATED 8716 VALVE OPEN).
  2. 1 TRAIN IN SERVICE TO REMOVE DECAY HEAT OR AVAILABLE TO DO SO (ASSOCIATED 8716 VALVE CLOSED).
  3. MODE 4 OPT-203 CHECKS TO ENSURE POWER AVAILABLE TO RHR CROSS-TIE VALVES (8716 A/B).
  4. AS TEMPERATURE IN THE RCS INCREASES TO 350°F, BOTH TRAINS ARE PLACED IN STANDBY READINESS.
- MODE 3 CONFIGURATION
  1. BOTH TRAINS IN STANDBY READINESS WITH 8716 A/B OPEN.
  2. MONTHLY LINEUP CHECKS INCLUDE VERIFYING 8716 A/B OPEN.

CHRONOLOGY OF THE RHR VALVE MISPOSITION

12/02/91		PLANT STATUS IS MODE 5.
12/02/91	0102	TRAIN A OF RHR PLACED IN STANDBY READINESS PER SYSTEM OPERATING PROCEDURE WITH 8716 A OPEN.
12/02/91	0102	TRAIN B OF RHR WAS IN A SHUTDOWN COOLING ALIGNMENT AND REMOVING HEAT FROM THE RCS WITH 8716 B CLOSED.
12/03/91	0134	MODE 4 ENTRY.
12/04/91	0355	TRAIN B OF RHR SECURED TO SUPPORT RCS BOUNDARY CHECK VALVE TESTING. DIFFICULTIES ENCOUNTERED DURING TESTING.
12/04/91	1029	UNIT SUPERVISOR REQUESTED REACTOR OPERATOR TO CLOSE THE TRAIN A CROSS CONNECT 8716 A TO SUPPORT TESTING.
12/04/91	1101	STARTED TECHNICAL SPECIFICATION REQUIRED SYSTEM VENTING PER OPT-203 ON RHR TRAIN B.
12/04/91	1234	COMPLETED RCS BOUNDARY CHECK VALVE TESTING.
12/04/91	1234 (APPROX.)	UNIT SUPERVISOR REQUESTS REACTOR OPERATOR TO LINE UP TRAIN B RHR IN STANDBY READINESS. RO DID NOT COMPLETE ALL PROCEDURE STEPS. CROSS TIE VALVES LEFT CLOSED.
12/04/91	1333	MODE 3 ENTRY.
12/06/91	1745	UNIT SUPERVISOR NOTIFIED BY AN I&C ENGINEER OF POSSIBLE MISPOSITION OF RHR CROSS CONNECT VALVES 8716 A/B.
12/06/91	1831	RHR CROSS TIE VALVES 8716 A/B OPENED ON RHR. TRAIN A AND B SURVEILLANCE PERFORMED (VALVES CLOSED FOR 53 HOURS).
12/07/91	1450	MODE 2 ENTRY.
12/11/91	0536	MODE 1 ENTRY.

ROOT CAUSES OF THE RHR EVENT

1. THE REACTOR OPERATOR DID NOT PROPERLY FOLLOW THE SOP FOR PLACING RHR TRAIN B INTO STANDBY READINESS.

2. FAILURE TO COMPLY WITH THE ODA FOR SYSTEM STATUS IN NOT LOGGING 8716 A CLOSED.

CONTRIBUTING FACTORS

1. REACTOR OPERATOR BELIEVED THAT A HANDSWITCH ALIGNMENT HAD BEEN PREVIOUSLY COMPLETED AND THE VALVES WOULD BE REOPENED AS PART OF THE TEST RESTORATION.

2. THE SURVEILLANCE PROGRAM DID NOT REQUIRE A CHECK OF THE POSITIONING OF THE RHR VALVES AS IT DEPENDED ON THE SYSTEM OPERATING PROCEDURE TO PLACE THE SYSTEM IN THE CORRECT ALIGNMENT.

3. MULTIPLE ACTIVITIES INVOLVING RHR CONFIGURATION CHANGES PRIOR TO THE INFREQUENTLY PERFORMED MODE 3 ENTRY.

4. FOUR CREWS FAILED TO FIND THE HANDSWITCHES MISPOSITIONED ON THE CONTROL BOARD FOR APPROXIMATELY 53 HOURS.

IMMEDIATE CORRECTIVE ACTIONS FOR RHR EVENT

1. RE-REVIEW OF MODE 4 AND 3 SYSTEM LINE UPS

2. REVIEWED THE SURVEILLANCE DATA BASE TO ENSURE NO SIMILAR PROBLEMS AND COMPLIANCE WITH MODE ENTRY SURVEILLANCES

3. PERFORMANCE OF MODE 3 RHR AND CVCS SURVEILLANCE

4. ECCS HANDSWITCH ALIGNMENT CHECK (HANDSWITCHES AND CONTROLLERS ON SI, CT, RHR, CVCS AND AFW SYSTEMS)

5. PROCEDURE ENHANCEMENTS

6. RHR CROSS-TIE VALVE POSITION REQUIREMENTS ISSUED VIA LESSONS LEARN AND VOICE MAIL

PREVENTIVE ACTIONS FOR RHR EVENT

1. REVIEW MANAGEMENT EXPECTIONS ON CONTROL BOARD AWARENESS AND PROCEDURE IMPLEMENTATION WITH EACH CREW.

2. DEVELOPED AN ECCS CONTROL SWITCH ALIGNMENT CHECKLIST TO BE PERFORMED PERIODICALLY FOR OVER 100 HANDSWITCHES, CONTROLLERS AND COMPUTER POINTS ON THE SI, CT, RHR, CVCS AND AFW SYSTEM.

3. QUIET PERIOD PRIOR TO MODE ENTRY TO REVIEW PAPER WORK AND PLANT STATUS.

4. PROCEDURE ENHANCEMENTS.

5. STRESS MANAGEMENTS EXPECTATIONS ON LOG ENTRIES.

SAFETY SIGNIFICANCE OF RHR EVENT

1. EVENT ANALYSIS CONSISTENT WITH WESTINGHOUSE OWNER GROUP REVIEW OF MODE 3 LOCA.

2. WORST CASE BREAK IS THE 10" RHR INJECTION LINES.

3. ANALYSIS EXCLUDED DOUBLE-ENDED GUILLOTINE BREAK IN RCS COLD OR HOT LEGS AS RULED OUT BY WOG MODE 3 LOCA ANALYSIS DUE TO A LOW PROBABILITY OF OCCURRENCE.

4. ASSUMPTION FOR ANALYSIS

   - RHR CROSS-TIE VALVES (8716 A/B) CLOSED
   - DECAY HEAT ASSUMED TO BE 4 HOURS
   - NUCLEAR POWER ZERO
   - TEMPERATURE 350°F
   - PRESSURE 475 PSIA
   - ONE TRAIN OF ECCS LOST
   - MANUAL SI SIGNAL WITHIN 10 MINUTES

5. RESULTS

   - NO EFFECT ON PLANT SAFETY
   - NO SIGNIFICANT DIFFERENCE IN TIME TO CORE UNCOVERY WITH VALVES OPEN OR CLOSED
   - CORE UNCOVERY OCCURS ONLY AFTER RWST DEPLETION (4 HOURS) AND IF RHR PUMP SUCTION IS NOT ALIGNED TO CONTAINMENT SUMP (COLD LEG RECIRCULATION)
   - WITH SI SIGNAL, RHR SUCTION REALIGNS TO CONTAINMENT SUMP PRIOR TO RWST DEPLETION
   - OPERATIONS PROCEDURES ENSURE RWST REALIGNMENT

SAFETY SIGNIFICANCE WITH THE PLANT AT NORMAL OPERATING PRESSURE AND TEMPERATURE

- ASSUMPTIONS FOR ANALYSIS
  - RHR CROSS-TIE VALVES (8716 A/B) CLOSED
  - LOW DECAY HEAT
  - TEMPERATURE 557°F
  - PRESSURE 2250 PSIA
  - NO RHR INJECTION
  - ACCUMULATORS AVAILABLE
  - WORST CASE BREAK (COLD LINE)
- RESULTS
  - NO EFFECT ON PLANT SAFETY
  - CORE UNCOVERY AND REFLOOD IN ABOUT 800 SECONDS
  - PEAK CLADDING TEMPERATURE (PCT) OF 750°F

ANALYSIS OF OTHER CONDITIONS

- MISALIGNMENT WOULD HAVE BEEN FOUND PRIOR TO MODE 2
  - I&C ENGINEER FOUND 8716 A/B CLOSED ON 12/06/91
  - RHR TRAIN A MONTHLY VERIFICATION SURVEILLANCE SCHEDULED FOR 12/06/91 (PLANT IN MODE 3)
  - RHR TRAIN A MONTHLY VERIFICATION SURVEILLANCE REQUIRED BY 12/11/91 (PLANT AT 18% POWER)
- AT POWER ANALYSIS ASSUMPTIONS
  - RHR CROSS-TIE VALVES (8716 A/B) CLOSED
  - PLANT AT 25% REACTOR POWER
  - 2250 PSIA
  - ACCUMULATORS AVAILABLE
  - WORST CASE BREAK (COLD LINE)
- RESULTS
  - NO EFFECT ON PLANT SAFETY

PROCEDURES THAT GOVERN AFW SYSTEM CONFIGURATION

- INTEGRATED OPERATING PROCEDURES (IPO)
  1. IPO-001 PLANT HEATUP FROM MODE 5 TO 3

- SYSTEM OPERATING PROCEDURES (SOP)
  1. SOP-304 AFW

- SURVEILLANCE TEST PROCEDURES (OPT)
  1. OPT-206 AFW

CHRONOLOGY OF THE EVENTS INVOLVING AUXILIARY FEEDWATER TURBINE DRIVEN PUMP

EVENT 1 HANDSWITCHES IN PULL-TO-LOCK POSITION

12/03/91	0134	MODE 4 ENTRY.
12/03/91	1427	AUXILIARY FEEDWATER TURBINE DRIVEN (AFW TD) PUMP STARTED UNCOUPLED TO SUPPORT AN OVER SPEED TEST (PUMP INOPERABLE).
12/04/91	1003	CLEARANCE RELEASED ON AFW TD PUMP AND HANDSWITCHES LEFT IN PULL-TO-LOCK AS REQUIRED FOR MODE 4.
12/04/91	1333	MODE 3 ENTRY.
12/04/91	1420	SHIFT SUPERVISOR FOUND STEAM ADMISSION HANDSWITCHES IN PULL-TO-LOCK POSITION.
12/04/91	1530	HANDSWITCHES WERE PLACED IN AUTO START POSITION PER SYSTEM OPERATING PROCEDURE.

EVENT 2 DOCUMENTATION ERROR

12/05/91	0450	STEAM ADMISSION CHECK VALVE SURVEILLANCE SIGNED ON TRACKING LCOAR 91-377 INSTEAD OF AN ACTIVE LCOAR.
12/06/91	0300	MANUALLY CLOSED AFW TD PUMP STEAM ADMISSION ISOLATION VALVES (PUMP CONSIDERED INOPERABLE).
12/06/91	0700	COMPLETED SURVEILLANCE ON STEAM ADMISSION CHECK VALVES AND MANUAL ISOLATION VALVES REOPENED. ACTIVE LCOAR 91-376 WRITTEN TO REPLACE TRACKING LCOAR.
12/07/91	0534	AFW PUMP SURVEILLANCE COMPLETED SAT. ACTIVE LCOAR 91-376 CLOSED.

ROOT CAUSES AND CONTRIBUTING FACTORS

OF THE AFW EVENTS

EVENT 1 HANDSWITCHES IN PULL-TO-LOCK POSITION

ROOT CAUSE: Error by several SROs in assuming that there was a 3.0.4 exception to the LCO for the AFW TD Pump.

CONTRIBUTING FACTOR: The surveillance program depended on the SOP to lineup the system to standby readiness and did not require a verification lineup.

EVENT 2 DOCUMENTATION ERROR

ROOT CAUSE: The Unit Supervisor failed to document on an active LCOAR the AFW TD Pump inoperable due to the steam admission isolation valves being closed.

CONTRIBUTING FACTOR: The operators considered the AFW TD Pump inoperable, but logged the steam admission check valve test on a tracking LCOAR rather than the required active LCOAR.

IMMEDIATE CORRECTIVE ACTIONS FOR AFW EVENTS

0	12/04/91	EVENT	RESTORED AFW TD PUMP TO STANDBY READINESS.
0	12/06/91	EVENT	MANUAL ISOLATION OF STEAM ADMISSION VALVES DOCUMENTED ON ACTIVE LCOAR.
0	BOTH EVENTS		LESSONS LEARNED ISSUED ON MANAGEMENT EXPECTATIONS ON HOW TECHNICAL SPECIFICATION 3.0.4 AND 4.0.4 APPLIES TO AFW TD PUMP.

PREVENTIVE ACTIONS FOR AFW EVENTS

- SURVEILLANCE DATABASE ENHANCEMENTS.
- INTEGRATED OPERATING PROCEDURE ENHANCEMENTS.
- EMPHASIZE IN OPERATOR TRAINING, TECHNICAL SPECIFICATION 3.0.4 AND 4.0.4 AS IT PERTAINS TO AFW.

SAFETY SIGNIFICANCE OF THE AFW EVENTS

1. No effect on Plant Safety.

2. Event 1 - Steam Admission Valves in pull-to-lock for 1 hour and 57 minutes after the plant had entered Mode 3.

3. Event 2 - Manual blocks for Steam Admission Valves closed for 4 hours while RCS at 450 degrees (pump recognized inoperable but not documented properly).

4. Auxiliary Feedwater has a 72 hour action statement for an inoperable turbine driven pump.

5. Turbine driven pump was capable of supplying flow with operator action.

6. Low decay heat generation.

7. Motor driven auxiliary pumps were operable.

8. Surveillance requirements would have assured Auxiliary Feedwater Driven Pump operable prior to Mode 2.

CONCLUSIONS

- PERSONNEL ERRORS ASSOCIATED WITH MODE 3 ENTRY
- ERRORS DID NOT AFFECT PLANT SAFETY
- ERRORS WOULD HAVE BEEN DETECTED PRIOR TO MODE 2
- IMMEDIATE CORRECTIVE ACTIONS TO ENSURE PROPER ALIGNMENT
- ACTIONS TO PREVENT RECURRENCE